

Rare Metastasis of Primary Pancreatic Adenocarcinoma to the Bladder

Anup Shah, MD¹, Praneet Korrapati, MD², Jerome Siegel, MD², and Franklin Kasmin, MD²

¹Department of Medicine, Mount Sinai Beth Israel, New York, NY

²Division of Gastroenterology, Mount Sinai Beth Israel, New York, NY

ABSTRACT

Pancreatic cancer commonly metastasizes to the liver, lungs, stomach, bone, and bowel, but rarely does it spread to the bladder. We describe a case of a 66-year-old woman with diabetes mellitus who presented with abnormal liver function laboratory tests, abdominal discomfort, unintentional weight loss, and no urinary symptoms. Abdominal CT revealed a pancreatic and bladder mass. Pathology of the bladder mass confirmed metastatic adenocarcinoma of pancreaticobiliary origin. To our knowledge, this is only the third case of metastatic pancreatic cancer spreading to the bladder since 1953.

INTRODUCTION

Pancreatic cancer accounts for approximately 3% of all cancers in the United States, and it is estimated to be the third highest cause of cancer-related deaths in the United States in 2017.^{1,2} Pancreatic cancer is often found at an advanced stage, and the 5-year survival rate is <4%.³ It commonly metastasizes to liver, lungs, stomach, bone, or bowel, but it is extremely rare for pancreatic cancer to spread to the bladder. The literature contains only 2 previously reported cases of metastatic pancreatic cancer involving the bladder; both cases presented with new-onset hematuria.^{4,5}

CASE REPORT

A 66-year-old woman with diabetes mellitus and basal cell carcinoma presented with intermittent nausea, lower abdominal discomfort, and unintentional weight loss for 2 months. Routine outpatient laboratory tests performed by her primary care physician 2 weeks prior to presentation revealed elevated alkaline phosphatase (ALP) 999 U/L, aspartate aminotransferase (AST) 95 U/L, and alanine aminotransferase (ALT) 140 U/L. Family history was significant for colon, lung, breast, and esophageal cancer. The patient had no history of tobacco use.

Initial laboratory tests in the hospital confirmed an abnormal hepatic panel, with ALP 403 U/L, AST 41 U/L, ALT 66 U/L, total bilirubin 1.3 mg/dL, and direct bilirubin 0.7 mg/dL. Abdominal computed tomography (CT) showed a poorly defined mass at the head of the pancreas with moderate to severe intrahepatic biliary ductal dilation. In addition, the CT showed a mass (2 × 2 cm) in the dome of the bladder and evidence of omental disease (Figure 1). The patient's CA 19-9 level was elevated at 48.5 U/mL, and her carcinoembryonic antigen level was normal. Endoscopic ultrasound (EUS) revealed a poorly defined irregular mass in the pancreatic body (Figure 2); fine-needle aspiration (FNA) of the pancreas with 9 passes identified glandular cells with atypia. Urinalysis was normal, notably without red blood cells. A sample of the bladder mass was obtained via transurethral resection of the bladder tumor (TURBT), and initial pathology was interpreted as invasive adenocarcinoma with questionable metastasis.

Upon further review of the pathology, the diagnosis was established as metastatic adenocarcinoma of pancreaticobiliary origin. The patient tolerated the TURBT well and was discharged from the hospital. On subsequent follow-

ACG Case Rep J 2018;5:e27. doi:10.14309/crj.2018.27. Published online: March 28, 2018.

Correspondence: Anup Shah, Dept. of Medicine, Mount Sinai Beth Israel, 50 East 17th St, 20th Floor, Baird Hall, New York, NY 10003 (anup.shah@mountsinai.org).



Copyright: © 2018 Shah et al. This work is licensed under a Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International License. To view a copy of this license, visit <http://creativecommons.org/licenses/by-nc-nd/4.0>.

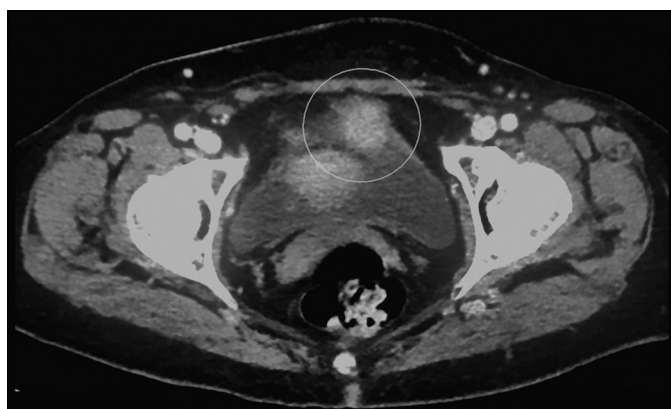


Figure 1. Abdominal/pelvic computed tomography revealing a mass in the dome of the bladder (circle) with close proximity to the uterus.

up, the patient was started on FOLFIRINOX, a chemotherapy regimen consisting of 4 therapeutic agents for metastatic pancreatic cancer.

DISCUSSION

Pancreatic cancer has an annual incidence of approximately 12.5 cases per 100,000 people.⁶ It is more common in men than in women, and with increasing age. Although the exact causes of pancreatic cancer remain unknown, tobacco use has been shown to increase the risk of developing pancreatic cancer. The risk of pancreatic cancer is 2.5–3.6 times greater in smokers than in nonsmokers, and the overall 5-year survival rate among patients with pancreatic cancer is <4%.^{3,7} The most common symptoms of pancreatic cancer include jaundice, weight loss, and epigastric pain.

CA 19-9 is a common tumor marker that has been studied to diagnose pancreatic cancer. According to a study in 2006, the sensitivity and specificity of CA 19-9 are 80.8% and 89.1%,

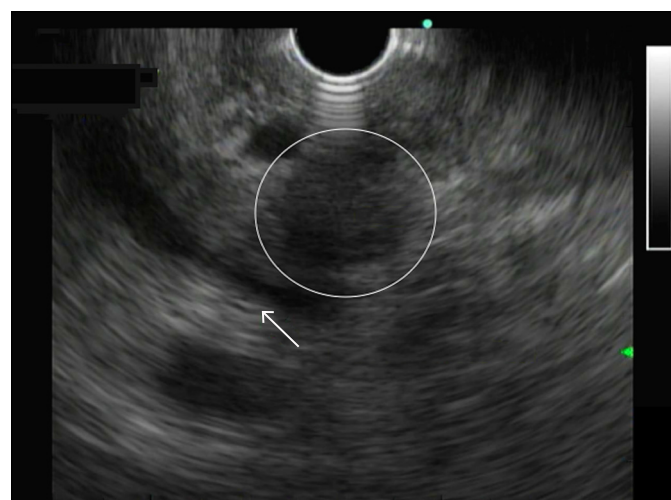


Figure 2. Endoscopic ultrasound of the pancreatic mass (circle) with narrowing of the superior mesenteric vein (arrow).

respectively, ranging from 70–92% and 68–92%, respectively.⁸ Our patient had a minimally elevated CA 19-9 level, which can be seen in benign pathology as well, such as in acute cholangitis and cirrhosis. Other malignancies that can express CA 19-9 include cholangiocarcinoma, hepatocellular carcinoma, and gastric, ovarian, and colorectal cancers.

Metastasis from the pancreas to the bladder is exceedingly rare; this is only the third reported case since 1953. The bladder is not a common site for metastasis of cancer, and when it does occur, the primary cancer is usually from elsewhere in the genitourinary tract or from a colorectal malignancy. There have been 2 case reports of hematuria and urinary blood clots as the presenting symptom of metastatic pancreatic cancer to the bladder, but this requires mucosal ulceration of the bladder wall.⁹ Our patient did not have any urinary symptoms, and her urinalysis was negative for microscopic hematuria. The diagnosis of pancreatic cancer necessitates histological confirmation. EUS with FNA has a sensitivity and specificity of 89% and 96%, respectively.¹⁰ Even though the EUS with FNA is regarded as the best modality to obtain a sample of pancreatic tissue, the FNA in this case revealed only atypical cells, resulting in a diagnostic challenge in determining the primary source of the malignancy.

The definitive diagnosis of metastatic pancreatic cancer to the bladder was not established until the pathology of the bladder tumor confirmed pancreatic adenocarcinoma. Our case highlights the importance of considering metastases when distinct masses are found in various organs. It is imperative to distinguish the primary malignancy in such patients as it may change management and treatment options.

DISCLOSURES

Author contributions: A. Shah wrote the manuscript. P. Korrapati, J. Siegel, and F. Kasmin edited the manuscript. F. Kasmin is the article guarantor.

Financial disclosure: None to report.

Informed consent was obtained for this case report.

Received December 1, 2017; Accepted February 2, 2018

REFERENCES

1. Key Statistics for Pancreatic Cancer. American Cancer Society website. <https://www.cancer.org/cancer/pancreatic-cancer/about/key-statistics.html>. Updated January 4, 2018. Accessed March 5, 2018.
2. Siegel RL, Miller KD, Jemal A. Cancer statistics, 2017. *CA Cancer J Clin*. 2017;67:7–30.
3. Hidalgo M, Cascinu S, Kleeff J, et al. Addressing the challenges of pancreatic cancer: Future directions for improving outcomes. *Pancreatol*. 2015;15:8–18.
4. Velcheti V, Govindan R. Metastatic cancer involving bladder: A review. *Can J Urol*. 2007;14(1):3443–8.
5. Cellini M, Deighton DA. Radiological case: Non-papillary bladder metastasis from pancreatic adenocarcinoma. *Appl Radiol*. 2014;43(11):74–6.

6. Howlader N, Noone AM, Krapcho M, et al. SEER Cancer Statistics Review, 1975–2014. National Cancer Institute website. https://seer.cancer.gov/csr/1975_2014. Updated June 28, 2017. Accessed March 5, 2018.
7. Hassan MM, Bondy ML, Wolff RA, et al. Risk factors for pancreatic cancer: Case-control study. *Am J Gastroenterol*. 2007;102:2696–2707.
8. Cwik G, Wallner G, Skoczylas T, Krzyzanowski M, Ciechajski A, Madro P. Elevated tumor marker CA 19-9 in the differential diagnosis of pancreatic mass lesions. *Ann Univ Mariae Curie Skłodowska*. 2004;59:213–8.
9. Chiang KS, Lamki N, Athey PA. Metastasis to the bladder from pancreatic adenocarcinoma presenting with hematuria. *Urol Radiol*. 1992;13:187–9.
10. Puli SR, Bechtold ML, Buxbaum JL, Eloubeidi MA. How good is endoscopic ultrasound-guided fine-needle aspiration in diagnosing the correct etiology for a solid pancreatic mass?: A meta-analysis and systematic review. *Pancreas*. 2013;42:20–6.